NOAA / AOML / Hurricane Research Division
2021 Hurricane Field Program
Advancing the Prediction of Hurricanes Experiment (APHEX)

FLIGHT LOG -- 20210810I1

MISSION PLAN			
FLIGHT ID	20210810I1	**STORM**	AL06
MISSION ID	0106A	**TAIL NUMBER**	NOAA43
TASKING	NHC	**PLANNED PATTERN**	Alpha+box pattern
MISSION SUMMARY			
TAKEOFF [UTC]	0839	**LANDING [UTC]**	1645
TAKEOFF LOCATION	Lakeland	**LANDING LOCATION**	Aruba
FLIGHT TIME	6.6	**BLOCK TIME**	
TOTAL REAL-TIME RADAR ANALYSES (Transmitted)	3 (3)	**TOTAL DROPSONDES (Good/Transmitted)**	3/3
OCEAN EXPENDABLES (Type)	N/A	**sUAS (Type)**	N/A
APHEX EXPERIMENTS / MODULES	N/A		
HRD CREW MANIFEST			
LPS ONBOARD	Marks	**LPS GROUND**	Dunion
TDR ONBOARD	Marks	**TDR GROUND**	Reasor
ASPEN ONBOARD	Wadler	**ASPEN GROUND**	N/A
NESDIS SCIENTISTS	Chang, Jelenak		
GUESTS (Affiliation)	N/A		
AOC CREW MANIFEST			
PILOTS	Abitbol		
NAVIGATOR			
FLIGHT ENGINEERS			
FLIGHT DIRECTOR	Lundry		
DATA TECHNICIAN	Richards		
AVAPS			

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PRE-FLIGHT	
Flight Plan	NHC alpha pattern followed by a box pattern or additional legs to attempt to close of a low-level circulation (if none was found during the initial alpha)
Expendable Distribution	Dropsondes released at the center center of each pass if a well-defined circulation is found. 3 additional sondes during the ferry to the IP to sample gradients associated with the SAL.
Preflight Weather Briefing	*[Notes from the Flight Crew Preflight Briefing and other relevant notes about the current and forecasted storm state for the flight]*
Instrument Notes	*No microphysics probes onboard 43. All other instruments operating normally.*

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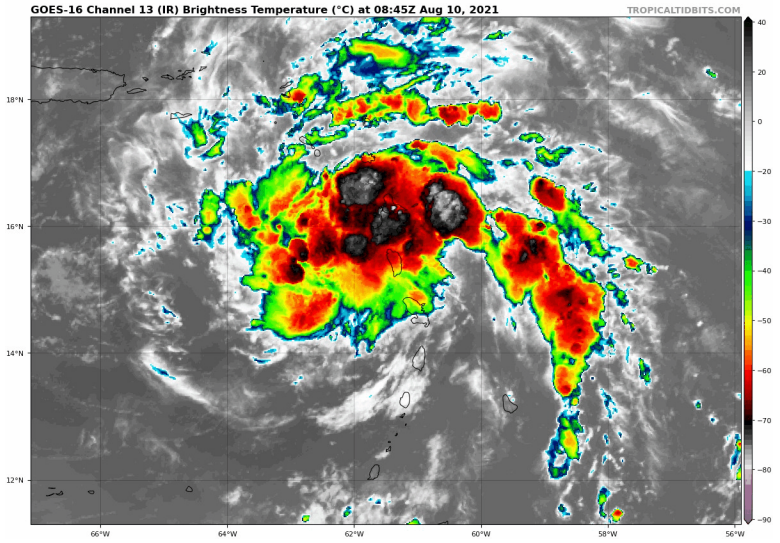
IN-FLIGHT	
Time [UTC]	**Event**
0900z	NHC keeping PTC at 30 kt with no well-defined surface circulation.
1105z	
1130z	Setting up 3 ONR drops to sample SAL NW of PTC Six. Drops requested along inbound ferry NW of the storm at 66.0W, 65.5W, & 64.5W.
1130z	GOES Geocolor (1130z)

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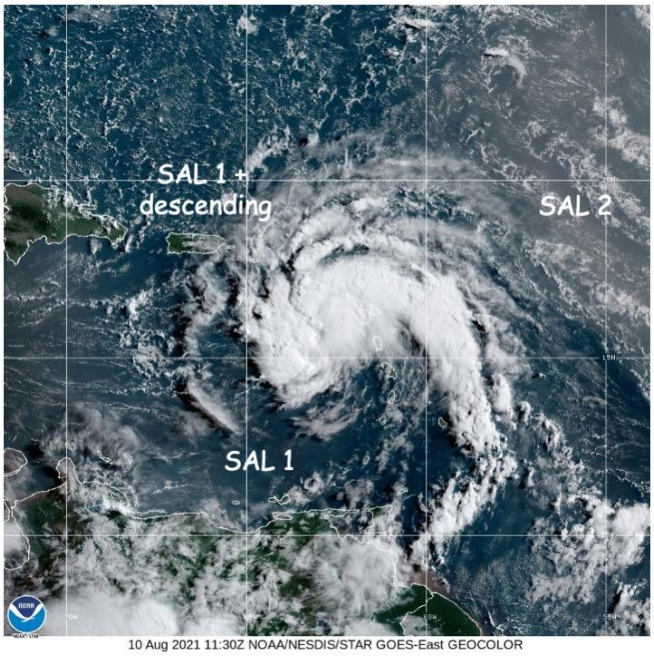
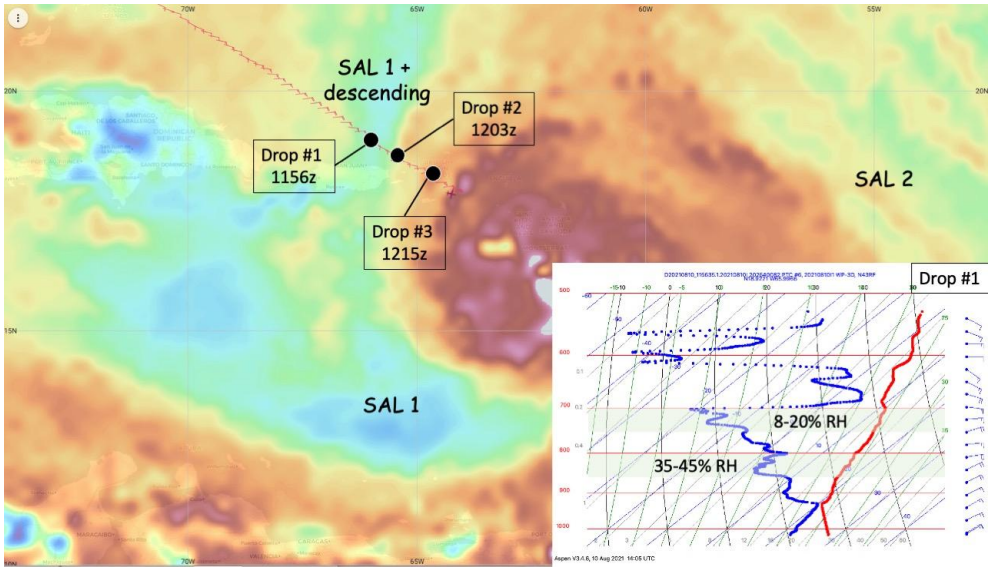
	 10 Aug 2021 11:30Z NOAA/NESDIS/STAR GOES-East GEOCOLOR
1130z	MIMIC TPW (1100z) 
1135z	Centering initial pattern on 16.0N 63.2W
1156z	Drop #1 18.92 N, 66.0 W (SAL 1 + dry, descending air/AEW moisture gradient) >> ONR sonde
1203z	Drop #2 18.50 N, 65.5 W (SAL 1 + dry, descending air/AEW moisture

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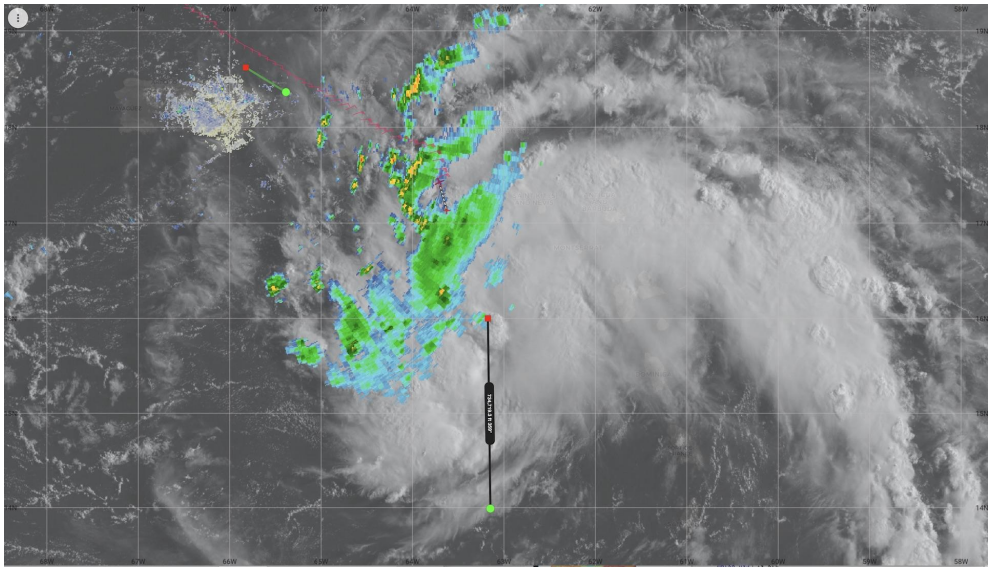
	gradient) >> ONR sonde
1215z	Drop #3 18.01 N, 64.5 W (SAL 1 + dry, descending air/AEW moisture gradient) >> ONR sonde. Launched from ~14kft during descent to pattern FL (1500 ft)
1230z	N43 picking through multiple outer bands N of center approaching IP N of "center" 
1243z	Inbound N-ctr leg bowing out west to avoid band convection- will have to then bow back to the SE to overfly the "center"
1248z	Climbing to 2500 ft before crossing large convective band N of estimated center

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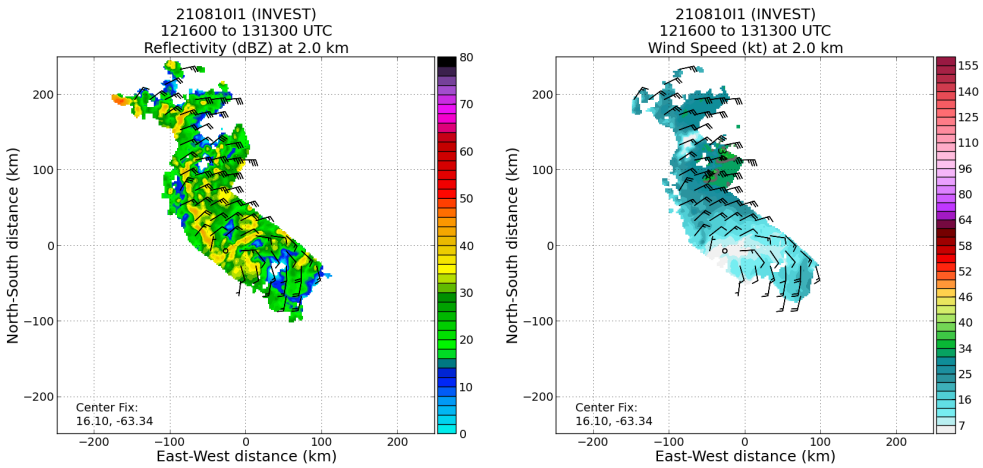
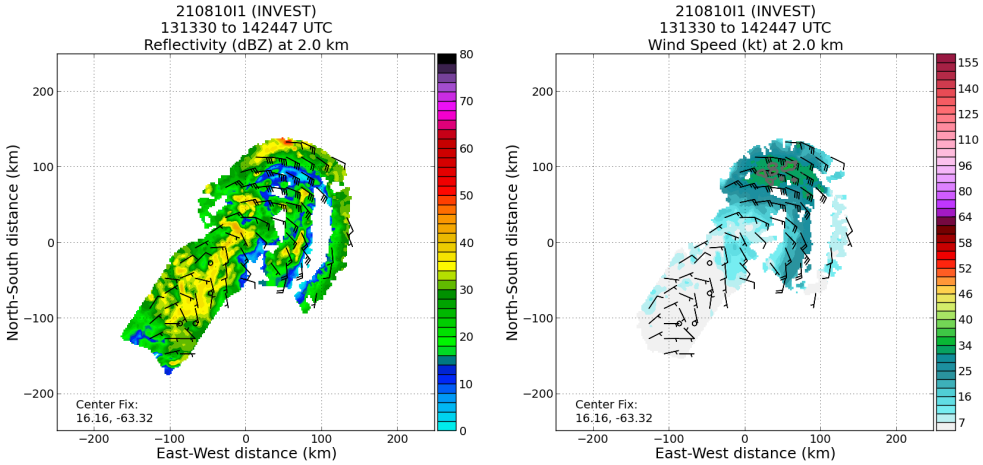
1313z	 Hints of an elongated NE-SW circulation at 2 km. Next NE-SW pass will hopefully provide a more complete picture.
1400z	NE-ctr leg: NHC not convinced of any solid westerly winds to close off the circulation.
1425z	End of ctr-SW leg. NHC asking for a S-N leg west of the “center” and then a final NW-SE pass to look for signs of a closed low-level circulation.
1424z	NE-SW and S-N passes indicate PTC Six still an open wave at 2 km. Signs of a mid-level 5-km closed circulation. 

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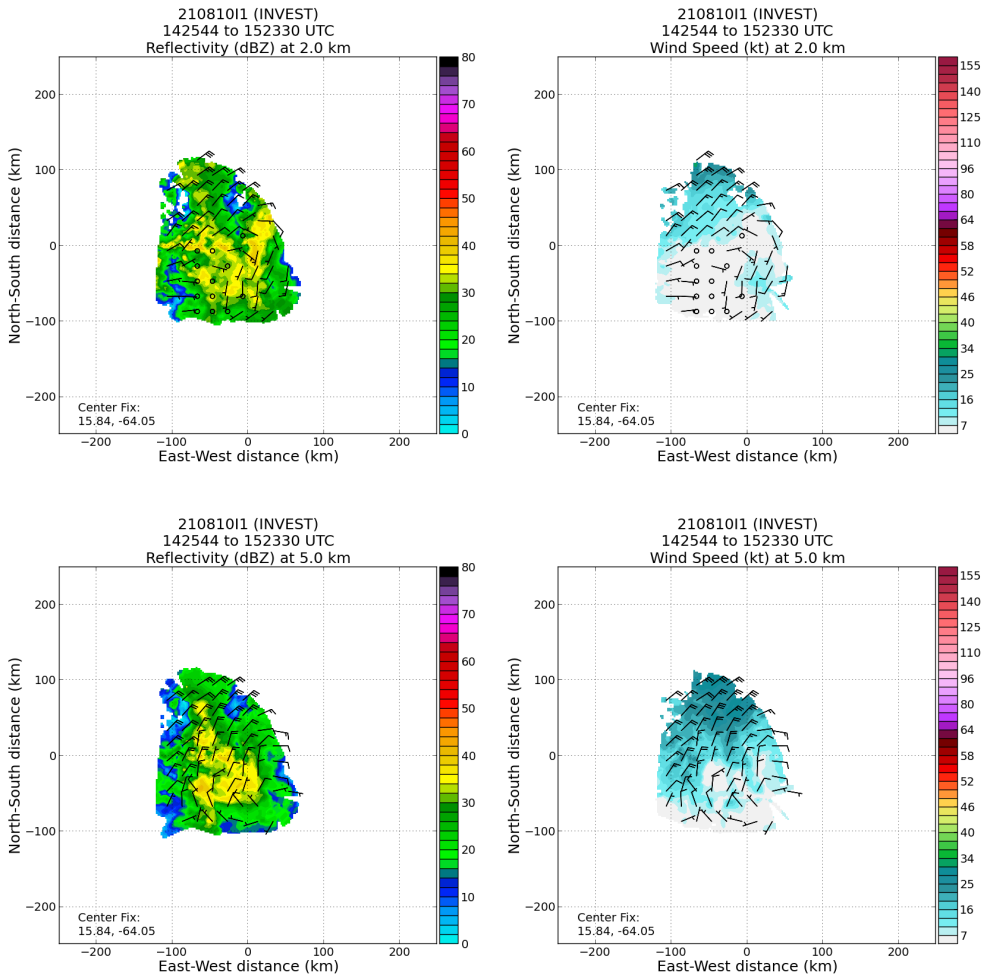

POST-FLIGHT	
Mission	Successful NHC invest mission. 3 tail Doppler radar analyses were also

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Summary	transmitted off the aircraft and 3 GPS dropsondes were transmitted to the GTS. PTC Six maintained its 30 kt intensity during the mission and TDR data indicated that the vortex was elongated SW-NE at 2 km and perhaps closed at 5 km. NHC mentioned in their 15z advisory the use of NOAA-43's observations to determine that PTC Six did not yet have a well-defined closed circulation, that wind and pressure fields more resembling an open wave, and that the intensity remained at 30 kt. Due to weather hazard avoidance and proximity to land, the planned pattern had to be modified slightly. 3 dropsondes were deployed to support ONR TCRI research and 3 were transmitted to the GTS (all sondes were charged to ONR).
Actual Standard Pattern Flown	Alpha pattern plus additional legs to investigate the environment of Potential Tropical Cyclone Six. The pattern was distorted due to the need to avoid convection and increase the flight level to maintain safety.
APHEX Experiments / Modules Flown	N/A
Plain Language Summary	• The NOAA P-3 flew this mission to investigate *Potential Tropical Cyclone Six* and determine if the disturbance had developed into a tropical cyclone. • The P-3 did not observe a well-developed low-level circulation in *Potential Tropical Cyclone Six* and therefore NHC did not upgrade the storm to a tropical cyclone.
Instrument Notes	The cloud microphysics package was not installed on the P-3 for this mission. All other aircraft instruments operated nominally.

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Final Mission Track